SPINOFFs ACTIVITY
NASA Glenn Research Center 2002

Create a box or trunk of items from the list below. Have the girls take turns pulling out one item at a time. Then, have the troop/group guess if the item is a NASA spinoff. This activity can also be done without a trunk by asking the girls whether the items on the list are related to the Space Program.

Ear Thermometer –Infrared sensors developed to remotely measure the temperature of distant stars and planets for the Space Shuttle program led to the development of the hand-held optical sensor thermometer. Placed inside the ear canal, the thermometer provides an accurate reading in two seconds or less.

Jeweler's Gem – Setting gemstones in jewelry is safer for jewelers. They no longer have to worry about inhaling dangerous asbestos fibers from the blocks they use as soldering bases. Space Shuttle heat shield tiles offer jewelers a safer soldering base with temperature resistance far beyond the 1,400 degrees Fahrenheit generated by the jeweler's torch.

Computer Joystick – Computer games can now be played with all the precision and sensitivity needed for a safe and soft Space Shuttle touchdown. A game-controlling joystick for personal computer-based entertainment systems was modeled after controls used in Shuttle simulators. Astronauts used the joystick to practice runway landings and orbit maneuvering.

Slick Products (e.g. WD40 or Liquid Wrench) – A lubricant used on the transporter that carries a Space Shuttle to the launch pad has resulted in a commercial penetrating spray lube which is used for rust prevention and loosening corroded nuts. It's also a cleaner and lubricant for guns and fishing reels, and can be used to reduce engine friction.

Nerf Toy Glider – Already successful with its Nerf toy products, Hasbro, Inc. wanted to design a toy glider that a child could fly. Benefiting from NASA wind tunnel and aerodynamic expertise used in the Space Shuttle program, Hasbro improved the flying distances and the loop-to-loop stunts of their toy gliders.

Bike Racing Helmet – In 1985 the U.S. Cycling Federation ruled that all racing bikers must wear helmets for safety. But existing helmets were very hot and heavy. So the Giro Sport Design company designed the "Giro Prolight" with the help of NASA airfoil technology from Ames Research Center used to reduce the drag on WWII fighter aircraft. The helmet design also included vents in the front and rear to let air flow through the helmet. It has been improved through the years but original design was a spin-off from NASA.

Glasses/Scratch-Resistant Lenses – Foster Grant Corp. and Bausch & Lomb, Inc. sunglasses feature a coating that offers 10 times the scratch-resistance of conventional glass lenses. This evolved from a process using DLC (diamond-like carbon) which became affordable through a NASA technique called direct ion deposition – Lewis Research Center (now Glenn Research Center) patented the technology originally for aircraft & spacecraft, but it is now also used in commercial optical products.

Dustbuster – Cordless products in use today are rooted in Apollo technology. Among the most important tasks by Apollo astronauts the moon was collection of lunar rock and soil samples for analysis on Earth. A very powerful, yet lightweight and compact drill had to be developed. The job of developing the "battery-powered, magnet-motor" drill for NASA was entrusted to the Black & Decker Manufacturing Company. The knowledge gained in developing the drill was extended to many other hand-held, rechargeable products later developed by B&D, including the famous "Dustbuster."

Pillsbury Packaged Food – Food products in the early space program had two concerns: preventing food crumbs from floating in the spacecraft, and eliminating any disease-producing bacterial, viruses and toxins in the food. To solve this, NASA worked with Pillsbury to develop the Hazard Analysis and Critical Control Point (HACCP) concept, designed to prevent food safety problems. Since the mid-1970's, the FDA has required this for all "canned" food products in the United States. HACCP is also used in meat and poultry inspection as well as for Totino's Party Pizza.

Preserving Fresh Fruit – NASA's interest in developing a renewable food source for future long-term space travel has led to a new product that will improve the freshness of fruit on Earth. The Ethylene Monitoring and Control System provides optimal exposure of citrus fruit to ethylene, the gas that turns fruit from green to a ripened color. This monitor will have application in the citrus processing market.

Golf Balls – The Imaging Technology Center at NASA Glenn Research Center has high-speed video equipment that gathers high-quality digital video imagery to measure, analyze, and obtain accurate data on numerous applications for lunar missions and improving aircraft engines. Using this technology, NASA tested the spin rate calculations for the Ben Hogan Company's Golf Ball Division and a new golf ball was developed which will allow golfers to shoot lower scores.

Solar Calculator or Solar Watch – With the development of satellite technology and their use for communications and weather forecasting, NASA needed a means to provide continual remote power to sustain their life in space. For this purpose, NASA pioneered the development of solar cells to capture energy from the sun and transfer this power to batteries to achieve their goal. As development of solar cells improved and became more affordable, many spin-off purposes were created and now used for such things as calculators and watches and may someday be used more for generating power to homes.

PRODUCTS NOT DEVELOPED FOR THE NASA SPACE PROGRAM

Space Pen - Developed by the Fisher Pen Company, the pressurized ink cartridge technology was voluntarily offered to NASA for use in the weightlessness of space.

Velcro™ - Although used widely for NASA applications, Velcro was not developed specifically for space applications.

Teflon™ - This product is used widely for NASA, but the invention actually predates the space program.

Tang™ - Although used by astronauts as a drink in space, Tang was not originally invented for NASA.

The information on the products in this activity is provided as a service for reference and does not imply endorsement by NASA or the United States Government.